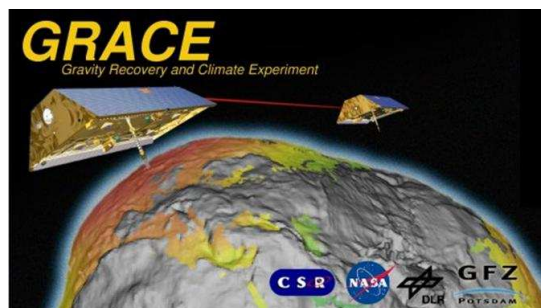


GRACE Science Data System Monthly Report

November 2008



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Highlights:

- Next **GRACE Science Team Meeting** will be held on Dec 12-13 (Fri-Sat), 2008 in the Holiday Inn Golden Gateway in San Francisco (see <http://www.csr.utexas.edu/grace/GSTM/>). Abstract submission deadline has already passed; a **registration is required** for all attendees and can still be done at the meeting.
- CSR has generated RL04 Level-2 products for October 2008. Delivery is expected soon; please check the content of the archives.

Satellite Science Relevant Events:

- Operations in Science Mode throughout the month, except the events mentioned in the Level-1 Data Processing Section below.
- The GRACE-1 Brouwer mean orbital elements on December 1, 2008 00:00:00 are as follows:
A [m] = 6838724.968
E [-] = 0.001739
I [°] = 89.016581
- The satellites separation was 254 km on December 1, 2008 with a rate of +.57 km/d. Orbit maintenance maneuver will not be needed for some months.

Level-0 raw data dump reception statistics at DLR ground stations Weilheim and Neustrelitz:

| | | | |
|-----------------------|---------|-----------------------|---------|
| GRACE-A Housekeeping: | 100.0 % | GRACE-B Housekeeping: | 100.0 % |
| GRACE-A Science: | 100.0 % | GRACE-B Science: | 100.0 % |

Level-1 Data Processing:

- Level-1B Release 01 instrument data have been processed at JPL and archived at GRACE-ISDC and JPL PO.DAAC. Please refer to the statistics below.
- Notes:
 - On 2008-11-03 GRACE-A experienced a double IPU (Instrument Processing Unit) reboot at 11:00 and 11:15 followed by another IPU reboot at 23:05. In total 30 minutes of KBR1B data was lost.
 - On 2008-11-04 GRACE-A experienced a double IPU reboot at 10:24 and 10:40. In total 31 minutes of KBR1B data was lost. Furthermore the A/D converter on the GRACE-A accelerometer locked up at 13:52 and was restored to nominal operations at 22:34. In total 8 hrs and 44 minutes of ACC1B data is lost and unrecoverable.
- **KBR statistics:**
 - A) KBR1B product name
 - B) Total arc length with data (hours)
 - C) Number of observations used in residual calculation
 - D) KBR-GPS range residual RMS (cm)
 - E) minimum KBR-GPS range residual (cm)
 - F) maximum KBR-GPS range residual (cm)
 - G) number of continuous segments in the KBR product

| A | B | C | D | E | F | G |
|---------------------------|------|-------|------|------|-----|---|
| KBR1B_2008-10-31_X_01.dat | 24.0 | 17260 | 1.30 | -4.7 | 2.8 | 1 |
| KBR1B_2008-11-01_X_01.dat | 24.0 | 17280 | 1.40 | -3.2 | 3.7 | 1 |
| KBR1B_2008-11-02_X_01.dat | 24.0 | 17260 | 1.37 | -3.2 | 3.8 | 1 |
| KBR1B_2008-11-03_X_01.dat | 23.4 | 16887 | 1.44 | -3.3 | 4.0 | 3 |
| KBR1B_2008-11-04_X_01.dat | 23.4 | 16883 | 1.69 | -3.6 | 4.7 | 3 |
| KBR1B_2008-11-05_X_01.dat | 24.0 | 17260 | 1.37 | -3.8 | 3.2 | 1 |
| KBR1B_2008-11-06_X_01.dat | 23.9 | 17196 | 1.67 | -4.1 | 4.6 | 2 |
| KBR1B_2008-11-07_X_01.dat | 24.0 | 17280 | 1.42 | -4.0 | 3.2 | 1 |
| KBR1B_2008-11-08_X_01.dat | 24.0 | 17280 | 1.30 | -2.9 | 3.4 | 1 |
| KBR1B_2008-11-09_X_01.dat | 24.0 | 17280 | 1.40 | -3.8 | 3.6 | 1 |
| KBR1B_2008-11-10_X_01.dat | 24.0 | 17280 | 1.43 | -3.2 | 4.9 | 1 |
| KBR1B_2008-11-11_X_01.dat | 24.0 | 17280 | 1.45 | -4.8 | 4.1 | 1 |

| | | | | | | |
|---------------------------|---------------------|-------|------|------|-----|---|
| KBR1B_2008-11-12_X_01.dat | 24.0 | 17280 | 1.61 | -4.6 | 4.0 | 1 |
| KBR1B_2008-11-13_X_01.dat | 24.0 | 17280 | 1.24 | -4.0 | 2.6 | 1 |
| KBR1B_2008-11-14_X_01.dat | 24.0 | 17280 | 1.02 | -3.1 | 2.8 | 1 |
| KBR1B_2008-11-15_X_01.dat | 24.0 | 17226 | 1.49 | -3.4 | 4.5 | 1 |
| KBR1B_2008-11-16_X_01.dat | 23.8 | 17070 | 1.42 | -2.8 | 3.6 | 2 |
| KBR1B_2008-11-17_X_01.dat | 24.0 | 17280 | 1.36 | -3.4 | 4.9 | 1 |
| KBR1B_2008-11-18_X_01.dat | 24.0 | 17280 | 1.49 | -4.1 | 3.4 | 1 |
| KBR1B_2008-11-19_X_01.dat | 24.0 | 17280 | 1.28 | -2.8 | 4.5 | 1 |
| KBR1B_2008-11-20_X_01.dat | 24.0 | 17280 | 1.29 | -3.4 | 3.6 | 1 |
| KBR1B_2008-11-21_X_01.dat | 24.0 | 17280 | 1.48 | -3.6 | 3.3 | 1 |
| KBR1B_2008-11-22_X_01.dat | 24.0 | 17280 | 1.41 | -3.9 | 5.1 | 1 |
| KBR1B_2008-11-23_X_01.dat | 23.9 | 17203 | 1.37 | -3.7 | 4.2 | 2 |
| KBR1B_2008-11-24_X_01.dat | 24.0 | 17280 | 1.18 | -3.8 | 3.8 | 1 |
| KBR1B_2008-11-25_X_01.dat | 24.0 | 17280 | 1.32 | -3.1 | 4.6 | 1 |
| KBR1B_2008-11-26_X_01.dat | 23.9 | 17242 | 1.42 | -3.8 | 5.6 | 3 |
| KBR1B_2008-11-27_X_01.dat | 24.0 | 17280 | 1.14 | -4.3 | 3.4 | 1 |
| KBR1B_2008-11-28_X_01.dat | not yet distributed | | | | | |
| ... | | | | | | |
| KBR1B_2008-11-30_X_01.dat | not yet distributed | | | | | |

- Following JPL RL00 (yellow) and RL01 (green) L1B products are publicly available. June and July 2002 (red) are not provided due to accelerometer problems.

| L1B data | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2002 | | | | | | | | | | | | |
| 2003 | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | |

- The software to convert from GRACE GPS1x format to Rinex format has been updated to handle the presence of data from PRN32 since Feb. 26, 2008. Users should download and re-install the entire Level-1 Read software suite (RELEASE_2008-03-20) from the GRACE archives. This software is backwards compatible and can process all mission data.
- L1B De-aliasing Products Status (for details see AOD1B Product Description Document):
 - Release 01: Generation has been stopped June 30, 2007.

- Release 03: Generation has been stopped January 31, 2007.
- Release 04: Generated until December 2, 2008.
- Quality statistics for Release 04 products are online available at <http://www.gfz-potsdam.de/pb1/op/grace/results> (follow link “GRACE Atmosphere and Ocean De-aliasing Statistics”).
- Following AOD1B products are publicly available (yellow: RL01, RL03 and RL04; green: RL01 and RL04, blue: RL04 only):

| AOD1B | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2002 | | | | | | | | | | | | |
| 2003 | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | |

Level-2 Product Generation and Distribution:

- Besides historical CSR RL01, GFZ RL03 and JPL RL02 time-series (see below) and more experimental releases which are only available to the GRACE Science Team the following RL04 L2 products are presently available to the public (green: available, yellow: in preparation; red: missing due to accelerometer data problems):
 - **GFZ:** GSM solutions for August 2002 until September 2008. July 2004 until October 2004 and December 2006 are also available as constrained solutions (*GK2-*). Corresponding background GAA, GAB, GAC and GAD products and calibrated errors (GSM*.txt) have been provided too. Details are listed in the GFZ L2 Release Notes.

| GFZ RL04 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2002 | | | | | | | | | | | | |
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| 2004 | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | |

- **CSR:** GSM solutions along with the GAC and GAD background model files and calibrated errors (GSM*.txt) are available for the period April 2002 until October 2008. Details are listed in the CSR L2 Release Notes.

| CSR RL04 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2002 | | | | | | | | | | | | |
| 2003 | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | |

- JPL: GSM version 4.1 labeled “*JPLEM_0001_0004” along with the GAA, GAB, GAC and GAD background model files and calibrated errors (GSM*.txt) are available for the period April 2002 until August 2008. Details are listed in the JPL L2 Release Notes.

| JPL RL04 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2002 | | | | | | | | | | | | |
| 2003 | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | |

- GFZ has stopped RL03 processing (Feb 2003 until Jan 2007 available at the archives. For further details refer to the GFZ RL03 release notes for Level-2 products).
- CSR has stopped RL01 processing. (Apr. 2002 until Dec 2006 available at the archives. For further details refer to the CSR RL01 release notes for Level-2 products).
- JPL has stopped RL02 processing (January 2003 until November 2005 available at the archives. For further details refer to the JPL RL02 release notes for Level-2 products).
- TN05 containing C20 estimates derived from SLR and using GRACE RL04 standards is periodically updated.

Miscellaneous:

- A list of GRACE related publications which can be sorted by author or date is available at http://www.gfz-potsdam.de/pb1/op/grace/index_GRACE.html under item “Publications”. This list will be regularly updated and maybe incomplete. If you are missing a publication please send an e-mail to Frank Flechtner.
- Science data users are encouraged to submit citations of their own and other works related with GRACE to the bibliography web page implemented at PO.DAAC: <http://podaac.jpl.nasa.gov/grace/bibliography.html> .

